

# **The Case to Retire Big Brown, Monticello and Martin Lake Coal Plants**

*Three Financially Mismanaged, Unprofitable, Outmoded and Worthless Coal Plants in  
North Texas*

**A Report Prepared for**

**Sierra Club**

**March 17, 2011**

**Tom Sanzillo  
TR Rose Associates  
New York, New York**

## TABLE OF CONTENTS

I. Executive Summary.....	3
II. Background .....	5
III. Debt Load Emerging From Private Equity Transaction .....	6
IV. Weak Valuation of Underlying Generation Assets Hurt Credit Position.....	7
V. EFH Announces A Second, \$4.1 Billion Write Down In Third Quarter 2010.....	9
VI. Market Factors and the \$13.05 billion Write-Off.....	10
VII. EFH/Luminant’s Coal Assets Face Additional, Substantial Capital Outlays to Comply with Clean Air Act and Other Environmental Laws.....	13
VIII. A Straightforward Assessment of EFH/Luminant’s Coal Plant Valuation.....	15
IX. Plant Valuations In Context of Environmental Liabilities and Existing Debt Levels.....	18
X. Conclusion .....	19
Appendix I: A Straightforward Assessment of EFH’s Luminant Coal Plant Valuation ..	21
Appendix II Tom Sanzillo Biography.....	25

## **I. Executive Summary**

This study shows why the replacement of three coal fired power plants built in the 1970's (Big Brown, Monticello and Martin Lake) is a financial and environmental necessity. The plants, currently owned by Energy Future Holding/Luminant and serving North Texas are financially mismanaged, cannot compete profitably in the current market, require pollution control upgrades that are unaffordable and have suffered deep losses in market value. The financial outlook for the company and the plants going forward show very little upside. A broad look at the national and Texas energy market suggest planning tools and resources exist to ensure a smooth transition to a more financially stable and reliable supply of electricity.

Decision makers in Texas and across the country are making economic decisions to replace aging power plants and transmission lines. New investments in natural gas, wind, solar, energy efficiency and other renewables will take place whether or not new pollution standards are being considered with regard to coal fired power plants. This paper makes the case that the three coal plants under study are the weak financial and environmental links in the electrical grid in Texas. They are, therefore, priority candidates for replacement.

### **The Basic Case**

Big Brown, Monticello, and Martin Lake are three large lignite mine-mouth pulverized coal plants accounting for 5,280 MW of electricity near Dallas, Texas. In 2007, these three served as the work horses for a \$46 billion Texas energy deal. A deal that made national headlines for its boldness: a highly orchestrated buy out of the largest supplier of electricity in the state of Texas and an announcement to scrap plans to build 11 new coal plants.

The sale of then Texas based TXU to a large group of outside investors meant that the lights in Dallas—and the electricity supplied by the three coal plants—were now owned by private investors. The outside owners promised lower prices, innovation and cleaner skies, recognizing the challenges that these three coal plants in particular held as the largest emitters of pollution in North Texas. Today, however, these plants, and the complex corporate structure used in the buy-out are almost worthless, struggling to remain cash-positive, and under serious allegations of major violations under the Clean Air Act.<sup>1</sup> The outside investors have recently become involved in a highly public debate over their investment claims. This report shows from a financial perspective what happened and why these three plants are high priority candidates for retirement.

North Texas has historically been the region of the state most dependent on coal fired power generation. Coal-fired technology has reliably produced affordable electricity, but with the trade-off of significant levels of air pollution in the Dallas/Fort Worth area.

---

<sup>1</sup> Dan Lowrey, *Sierra Club sues EPA over access to documents over Luminant coal-fired plants*, SNAL Coal Daily, February 25, 2011, and Matthew Bendyk, *Sierra Club, other groups file suit over emissions from Texas coal plant*, SNL Coal Daily, September 3, 2010.

Today, the economic benefits of these coal plants are fading and the outlook is poor. In addition, the environmental pollution requires substantial remediation that only heightens the risks to this poor financial outlook.

This report is about the finances of coal plants. It is particularly about the finances of three coal plants owned by EFH/Luminant. The questions addressed in this case study are: (1) what is the value of Monticello, Martin Lake and Big Brown and (2) would continued investment in them be advisable. The answers are simple: not much and no.

In sum:

- In 2007, TXU was sold to EFH for \$46 billion. Three coal plants were part of the deal and had a purported estimated value between \$10.6 and \$13.0 billion;<sup>2</sup>
- Since the transaction closed, EFH has written down the value of the company and its coal plants in the aggregate by \$13.05 billion. EFH is now rated CCC+ by Standard Poors which is a speculative, sub-junk credit rating. According to its principal investors the investment is worth about 20% of its original value (\$9.2 billion) which was \$46 billion;
- Today, the value of EFH's coal plants using a simple, direct method undistorted by the valuation of the failed dealmakers, is in the range of \$700 million to \$2.4 billion;
- The plants also carry an estimated \$10-\$15 billion in existing debt as part of the 2007 buyout, making the debt on the plants dwarf the estimated retained value by a factor of almost 10 to 1;
- An estimated \$3.6 billion in new investment is now needed to bring the plants into compliance with clean air pollution requirements;
- According to the region's power grid monitor, merchant coal plants are losing revenues due to low natural gas prices and new wind energy capacity. These trends are likely to continue;
- As a result of the competition for natural gas and wind, EFH's existing coal plants are not producing sufficient net revenue (income after expenses) to support the needed investments in air pollution control equipment;
- One national industry consulting firm has called for the retirement of all merchant coal plants in Texas because revenues will be insufficient to cover expenses and the costs associated with pollution control equipment. EFH's plants are prime candidates for retirement under their criteria, and made doubly so by their weak overall credit position and declining financial performance.

---

<sup>2</sup> One coal unit at the Sandow plant was also included. It is excluded from consideration in this report.

## II. Background

In February 2007, TXU Corporation announced that it agreed to be acquired by a consortium of private equity investors in a highly leveraged transaction. Prior to the buyout TXU had been an integrated utility providing generation, distribution and transmission services in Texas. The revamped TXU structure was organized under a new corporate rubric with the name Energy Future Holdings (EFH), the parent entity.<sup>3</sup> The assets of the new company were valued at \$46.3 billion.

EFH organized under two subsidiaries and a number of intermediate and affiliated entities:

The first is Oncor Electric Delivery Company (ONCOR), a transmission and distribution utility serving the greater Dallas region and regulated by the Public Utility Commission of Texas (PUC). Energy Future Intermediate Holding (EFIH) is an intermediate holding company of EFH's attached to the ONCOR entity.

The second subsidiary is Texas Competitive Electric Holdings (TCEH), a wholly owned-intermediate holding subsidiary that owned at the time 18 GW of generation assets, all in Texas including 8 GW's of nuclear and coal plants.<sup>4</sup> Its newly formed company Luminant<sup>5</sup> operates the plants. TCEH also hosts the largest Texas based retail electric provider which provides electricity services to approximately 2 million customers (TXU Energy).

The deal also included TXU's lignite reserves which provide mine mouth fuel access for several plants including Big Brown, Monticello and Martin Lake. The plants burn a combination of lignite and Powder River Basin coal from Wyoming. The fuel mixture historically produces low cost electricity.

The generation largely serves the North section of the Electric Reliability Council of Texas (ERCOT). The North section comprises 38% of the ERCOT market, the largest segment in the region. Generation from the region produces 45% of the electricity in ERCOT, which makes North Texas a net energy exporter. Within the Northern section, as in the ERCOT region as a whole, natural gas is the principle fuel source, though coal plays a significant role.<sup>6</sup>

---

<sup>3</sup> The new arrangement anticipated three benefits: 1) lower prices through September 2008; 2) improved environmental policies – notably less coal fired generation and an increased commitment to exploring renewable energy, and 3) the creation of a Sustainable Energy Committee (TXU Press Release February 26, 2007).

<sup>4</sup> EFH's 2007 10K filing lists its combined coal assets at 5,837 MW including Big Brown, Monticello, Martin Lake and one unit at the Sandow plant. For the purposes of this paper the Sandow units 557 MW represent 9.5% of EFH/Luminant's total coal plant capacity.

<sup>5</sup> EFH/Luminant will be the primary way TCEH and its coal and other assets are referred to in this report. From time to time commentator quotes refer to TCEH.

<sup>6</sup> Potomac Economics, LTD, Independent Monitor for the ERCOT Wholesale Market, *2009 State of the Market Report for the ERCOT Wholesale Electricity Markets (ERCOT 2009)*, July 29, 2010, p. xi.

The TXU/EFH transaction contained certain “new build” coal generation projects that would add capacity and new revenues to the generation fleet. Additional Sandow units and Oak Grove plants representing approximately 2,200 MW’s of new capacity were ‘in-the-pipeline’ as part of the package.<sup>7</sup> At the time of the 2007 transaction environmentalists and investors compromised and cutback an earlier plan that called for a much larger investment in new coal plant generation.

Large investment firms Kohlberg, Kravis and Roberts (KKR), Goldman Sachs, Lehman Brothers, Citigroup, Morgan Stanley and Texas Pacific Group (TPG), Inc. supported the deal with substantial capital commitments.<sup>8</sup> Recently investors have taken steps to secure their interests as the investment has deteriorated.<sup>9</sup> The likely outcome to the public tumult is that there will be a formal ratification in investment terms of what the market has already determined – the investment has failed.

The 2007 transaction occurred at a time when air quality in the Dallas Fort/Worth area deteriorated to a level where it had become one of the nation’s pollution hot spots. Three of EFH/Luminant’s largest coal fired power plants serve the area. These merchant coal plants are among the leading contributors to the combination of emissions that have caused the problems in the area.<sup>10</sup> The plants comprise 5,280 MW of coal fired generation capacity (Big Brown: 1,150 MW, Martin Lake 2,250 MW and Monticello 1,880 MW).<sup>11</sup>

### **III. Debt Load Emerging From Private Equity Transaction**

As part of the 2007 transaction the new corporate entities absorbed the existing debt of TXU and its affiliates, an estimated \$14.1 billion<sup>12</sup> and added approximately \$30 billion in new obligations.

---

<sup>7</sup> See discussion of status: Energy Future Holding, 2009 10K Annual Report Filing, February 19, 2010, p. 46.

<sup>8</sup> Although Berkshire Hathaway was not named in the original public releases it apparently made a substantial commitment. Pierre Paulden, *Energy Futures Bondholders Said to Oppose \$6 Billion Debt Swap*, New York Post, October 9, 2009.

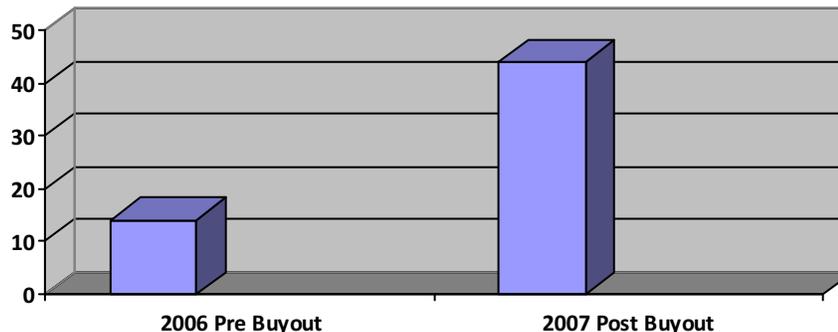
<sup>9</sup> Matt Wirz and Gregory Zukerman, *Texas-Size Woe for KKR-TPG*, Wall Street Journal, March 8, 2011 and Naureen Malik and Matt Wirz, *Aurelius Wages Legal Attack on Energy Future Holdings*, Wall Street Journal, February 26, 2011, Andrew Frye, *Berkshire Reports \$1 Billion Writedown as Bonds Fail to Recover*, Bloomberg News, February 27, 2011.

<sup>10</sup> MJ Bradley and Analysis Group, *Ensuring A Clean, Modern Electric Generation Fleet while maintaining electric Reliability*, August 2010, p.17.

<sup>11</sup> Energy Futures Holding, *EFH Corp. 2010 EEI Financial Conference Discussion Deck*, October 31<sup>st</sup>-November 3<sup>rd</sup>, p. 24. For the purposes of this report I have relied on EFH’s most recent accounting of plant capacity including the Sandow plants 557 MW. The FERC Form One report and Komanoff report referred to later in this report, show that earlier accounting presentations suggest higher planned capacity of up to 5,547 MW, a difference of 5%.

<sup>12</sup> Moody’s (2009), *Global Infrastructure Energy Future Holdings Corporation Analyses*, April 2009, p.5.

**Chart 1: Corporate Debt: Pre and Post Buyout**



By 2008 EFH had total adjusted debt of \$44 billion, apportioned among the affiliates in the following manner:

**Table 1: Debt Load of EFH**

Corporate Entity	Debt After Buyout
Energy Future Holdings	\$ 6.3 billion
Energy Future Intermediate Hldg Corp	\$ 0.1 billion
TCEH	\$31.6 billion
Oncor	\$ 6.1 billion
<b>Total Debt Load</b>	<b>\$44.1 billion</b>

Prior to the transaction TXU posted improvements in its financial performance.<sup>13</sup> The new high levels of debt carried by the same generation assets (with some future additions) and customer base became the basis for repeated statements of concern by Moody’s and other credit rating agencies. Going into its fourth year many of those credit concerns have materialized into poor financial performance. Recently Standard and Poors downgraded EFH corporate credit rating to CCC+ with a negative outlook.<sup>14</sup>

#### **IV. Weak Valuation of Underlying Generation Assets Hurt Credit Position**

At the time of the private equity transaction EFH presented an overall enterprise value of \$46.3 billion. The overall enterprise consisted of all the plants and equipment of the parent and its subsidiaries – coal, gas and nuclear plants, lignite mines, transmission lines, retail operations and commercial offices. This valuation carried a “considerable premium.” In short, the amount paid for the assets were not worth the price of the assets at the time of sale.<sup>15</sup> Investor’s were extending capital commitments based on a belief

<sup>13</sup> Moody’s (2007), *Proposed Acquisition of TXU by a Consortium of Private Equity Investors Raises Potential for a Multi-Notch Ratings Downgrade*, Moody’s Special Comment, March 2007, p.3.

<sup>14</sup> Reuters, *S&P cuts rating on Energy Future Holdings and Subsidiaries*, December 21, 2010. Prior to this S &P action EFH had the lowest credit rating (B-) of any utility on the list of the Edison Electric Institute’s list of major utilities, (see: Edison Electric Institute, *Credit Ratings, 3Q2010, Backup Data*, undated).

<sup>15</sup> See: TCEH, *Consolidated Financial Statement as of December 31, 2008 and Independent Auditors Report*, Prepared by Deloitte and Touche, March 02, 2009, p. 13. “The excess of the purchase price over

about future conditions and the earnings that could be anticipated from the current EFH fleet and its planned additions.<sup>16</sup>

Valuation is more art than science, until a buyer and seller agree to a price. EFH's assets were last publicly valued in the fall of 2007, as the LBO merger transaction was completed. At that time, EFH's total enterprise value was estimated at \$46.3 billion. This included an estimated valuation of roughly \$11.7 billion - \$12.7 billion for Oncor, and \$4.5-\$5.5 billion for TXU Energy (retail). The remainder, roughly \$29 billion, represented the implied value of Luminant's generation fleet. According to TXU this valuation was seen as a considerable premium for the 10.5 GW of baseload generating assets (which include the new plants at Sandow and Oak Grove).<sup>17</sup>

In August 2010 as part of Moody's ongoing commentary, a number of negative financial events since 2007 were factored into the baseline value of EFH's holdings. This valuation exercise paid particular attention to TCEH's assets, since TCEH owned the core holdings of the parent company. The erosion of value from the original 2007 levels has been sharp and the outlook negative.<sup>18</sup>

Another approach to assess the value of TCEH would deduct Oncor's average \$12.3 billion valuation from EFH's total enterprise value of \$46.3, implying a \$34 billion value for TCEH, or roughly \$3,200/kw of baseload capacity. We believe today's value is lower.

EFH's total valuation could directly affect potential recovery values in the event of a default. In 2008, EFH wrote off about \$8.0 billion in goodwill associated with its investment in TCEH. If we deduct the \$8.0 billion impairment charge from TCEH implied valuation of \$34.0 billion in August 2007, the new valuation for TCEH would be close to \$26 billion, or \$2447/kw of baseload capacity.

This decline in valuation (and potential recovery value) is aggravated in our view that there is little sign of near-term improvement. A hot summer helps liquidity but does not change the fundamental challenges facing the company. We are

---

the fair value of net assets acquired was recorded by EFH Corp. as goodwill, which upon finalization of purchase accounting in 2008 totaled \$23.2 billion."

<sup>16</sup> Moody's (2007) reflected the criticism that the private equity model of financing would most likely be inappropriate for the business needs of an integrated utility because private equity requires 20% short term returns on investment. This need would conflict with the goals of regulators and legislative bodies, p 2.

<sup>17</sup> Moody's (2010), *Energy Future's Holdings Corp, Analysis*, Moody's Investor Service, August 10, 2010, p. 6.

<sup>18</sup> TCEH, *Consolidated Statement*, p.15, contains the following statement: "In the fourth quarter of 2008 TCEH recorded a goodwill impairment charge totaling \$8.0 billion, which is not deductible for income tax purposes. This amount represents TCEH's best estimation of impairment pending finalization of the fair value calculations which is expected in the first quarter of 2009. The impairment primarily arises from the dislocation in the capital markets that has increased interest rate spreads and the resulting discount rates used in estimating fair values and the effect of recent declines in market values of debt and equity securities of comparable companies."

increasingly concerned with event risk, and we believe EFH's capital structure will eventually require a more material restructuring.<sup>19</sup>

In an earlier analysis (2009) of TCEH Enterprise Value, Moody's placed its low-end valuation at \$23 billion.<sup>20</sup> This exercise also provided a clearer valuation of the coal plants.

Our estimated implied valuation for TCEH ranges between \$23 and \$29 billion. This compares to our initial estimated implied valuation (October 2007) of between \$28-\$35 billion. Our revised reestimates assume a valuation of \$18-\$23 billion for the existing fleet (including the natural gas fleet), \$450-\$675 million for the lignite reserves, \$3.9-\$4.5 billion for the new build generation and \$0.8-\$1.1 billion for the retail operation.

[T]he majority of EFH's value resides in TCEH's 8 GW's of base-load coal and nuclear generation assets, which are located in ERCOT where power prices are highly correlated to the price of natural gas. We believe the implied asset valuation for TCEH has fallen over the past year, possibly by as much as 20%, largely due to the decline in value associated with the coal assets and our views regarding the existing retail business operations.<sup>21</sup>

These adjustments result in a corresponding reduction in the estimated value of the Big Brown, Monticello and Martin Lake plants from a range of \$10.6 to \$13.0 billion in October 2007 to between \$8.4 and \$10.3 billion in March 2009, a decline of 20%.<sup>22</sup> These adjustments by Moody's are necessary corrections made when actual market conditions based on demand for electricity, actual prices and revenues received (and recognition of a change in economic outlook) are reconciled with assumptions made by private equity managers who established ambitious future values that failed to materialize.

## **V. EFH Announces A Second, \$4.1 Billion Write Down In Third Quarter 2010**

On October 8, 2010 the Dow Jones Newswire reported EFH would take a \$4.1 billion charge to its business in its third quarter 2010 filing.

This disclosure is the second major write down for the privately held company created in 2007 by the record setting, \$45 billion leveraged buyout of the former

---

<sup>19</sup> Moody's (2010), p.6. EFH's 2009 10K Filing previously cited places the finalized value of the first impairment write off at \$8.95 billion (not \$8.0 billion as originally disclosed), p. 47.

<sup>20</sup> Moody's (2009), p.6.

<sup>21</sup> Moody's (2009), p.6.

<sup>22</sup> Moody's placed the value of the total TCEH coal fleet between \$11.7 and \$14.3 billion in October 2007, and between \$9.3 billion and \$11.4 billion in March 2009, reflecting the 20% decline in the total enterprise value. The numbers reflected here exclude the value of the Sandow unit. Moody's (2009), p.7

TXU in a deal led by private equity companies Kohlberg, Kravis and Roberts and Co. and TPG, Inc.<sup>23</sup>

The newswire noted: a) the prior write down in 2008 for \$8.9 billion; b) some debt reduction was achieved through a debt swap that resulted in higher interest rates; and c) TCEH bond fell sharply in trading for the day representing diminished investor confidence. On October 29, 2010, EFH reported its third quarter results and took a charge of \$4.1 billion.<sup>24</sup>

In the absence of an updated Moody's report, a reasonable adjustment to TCEH's enterprise value would place it in the \$19-\$25 billion range. The estimated value for the three coal plants is in the range of \$6.9 to \$8.9 billion after this adjustment.<sup>25</sup>

## **VI. Market Factors and the \$13.05 billion Write-Off**

EFH and the business press have offered a short-hand version to explain the company's \$13.05 billion write-off. The short story is that power prices fell and hurt the company's value. The trouble for investors and devaluation of company assets in the current environment however suggest a number of other factors were at play. The reservations expressed by Moody's in 2007 about the initial overvaluation of assets and significant debt load warned of an unsustainable financial structure. Sharp reduction in regional power prices since 2007 only exacerbate EFH's underlying weakness.

The *2009 State of the ERCOT Market*<sup>26</sup> report describes an energy market in Texas characterized in the short- term by: a) dramatic reductions in the price of natural gas; b) decreases in the all-in price of electricity between 2008-2009 from \$80.97Mwh to \$35.09 Mwh;<sup>27</sup> and, c) current price levels for both coal and natural gas that prevent the generation of sufficient net revenue to provide for new investment.

The report also identifies a new trend with particular relevance to EFH's coal plants. Big Brown, Martin Lake and Monticello all serve ERCOT's North Zone. According to the 2009 market study, with the increase in wind capacity to the grid and declining natural gas prices, coal plants serving the zone are expected to be on the margin with increasing frequency.<sup>28</sup>

---

<sup>23</sup> Naureen Malik, *Update: Energy Future Sees \$4 Billion Charge Due to Lower Power Prices*, Dow Jones Newswire, October 8, 2010.

<sup>24</sup> Naureen Malik, *Update: Energy Future 3Q Loss Widens on \$4.1 Billion Write Down*, Dow Jones Newswire, October 29, 2010.

<sup>25</sup> Simply following Moody's logic the values would probably be lower. The Moody's report refers to EFH's initial write down in the \$8 billion range. The official statement of the corporation ultimately places the write down closer to \$9 billion.

<sup>26</sup> Potomac Economics, LTD., Independent Monitor for the ERCOT Wholesale Market, *2009 State of the Market Report for the ERCOT Wholesale Electricity Markets (ERCOT 2009)*, July 29, 2010.

<sup>27</sup> ERCOT (2009), p. ix.

<sup>28</sup> ERCOT (2009), p. 52.

This increase can be attributed to (1) increased wind resource production; (2) a slight reduction in demand in 2009 due to economic downturn, and (3) periods when natural gas prices were very low thereby making coal and combined-cycle natural gas resources competitive from an economic dispatch standpoint. As significant additional wind, coal and potentially nuclear resources are added to the ERCOT region and transmission constraints that serve to limit existing wind production are alleviated, it is likely that the frequency of coal as the marginal fuel will increase in the coming years.<sup>29</sup>

ERCOT's State of the Market study conducted an analysis of the impact of low power prices on net revenues from power generators.<sup>30</sup> The purpose of the analysis is to establish whether the interplay of power prices and the costs to produce electricity are resulting in net revenues sufficient to generate new investment. For coal and natural gas plants the net revenues in the current market were inadequate. The long-term projections of low power and natural gas prices suggest the investment climate for coal plants is particularly difficult. The analysis also suggests continued value impairments are likely as capacity factors fall.

The ERCOT market analysis echoes Moody's credit report that there is little in the forecast to suggest a significant, positive turnaround for EFH's current coal portfolio in the near or medium term.

Moody's points out that high natural gas prices will improve EFH's cash flow and liquidity. For this scenario high natural gas prices would have to reach \$7.50 /m/cu in 2009 and rise by \$2.50 /m/cu annually through 2013. Most current reviews of coal plant financing and natural gas prices project relatively flat fuel prices and rising numbers of coal plant retirements as a result.<sup>31</sup>

EFH's most recent 10K filing confirms that the troubling financial trends depicted in the 2009 ERCOT study continued through the 2010 operations year.

---

<sup>29</sup> ERCOT (2009), p. 52.

<sup>30</sup> ERCOT (2009), pps. 61-65.

<sup>31</sup> Bernstein Research, *U.S. Utilities Coal-Fired Generation Is Squeezed in the Vice of EPA Regulation: Who Wins and Who Loses?*, October 2010. Fahey, Jonathan, *Why Small Coal-Fired Plants Are Going Away*, Forbes, July 19, 2010. See also: Bernstein Research, *U.S. Utilities: A Visit to Washington Finds Utility Lobbyists and Environmentalists Agreeing on the Grim Outlook for Coal*, March 9, 2010; North American Electric Reliability Corporation.(NERC), *2010 Special Reliability Scenario Assessment: Resource Adequacy and Impact of Potential U.S. Environmental Regulations*, October 2010; Mark Kaplan, *Displacing Coal with Generation from Existing Natural Gas-Fired Power plants*, Congressional Research Service, January 19, 2010, Metin Celebi, Frank Graves, Gunjan Bethla and Lucas Brennan, *Potential Coal Plant Retirements Under Emerging Environmental Regulations*, Brattle Group, December 8, 2010, MJ Bradley and Analysis Group, *Ensuring A Clean, Modern Electric Generation Fleet while maintaining electric Reliability*, August 2010, ICF International, *Clean Air Regulations: Impacts of EPA Proposed Rules*, September 16, 2010. See also: Mike Morris, CEO, AEP; *Bank of America Merrill Lynch, Power and Gas Leaders Conference*, New York, September 29, 2010, slide # 6.

These plants (EFH legacy coal fleet) generally operate at full capacity to help meet the load requirements in ERCOT and maintenance and outages are scheduled during seasonal off-peak demand periods. Over the last three years, the total annual scheduled and unscheduled outages per unit averaged 33 days. Luminant's lignite/coal-fueled generation fleet operated at a capacity factor of 87.6% in 2008, 86.5% in 2009 and 82.6% in 2010, which represents top quartile performance of U.S. coal-fueled generation facilities. The 2008 performance reflects extended outages at several units, and the 2010 and 2009 performance reflects increased economic back down of the units, reflecting short-term periods when wholesale electricity market prices were less than production costs.<sup>32</sup>

Recent, forward looking research suggests the three plants are likely to experience continued challenges. A recent Bernstein Research study makes the following point concerning plants that burn Powder River Basin (PRB) coal and specifically those merchant plants in the ERCOT region:

By comparison with plants burning high cost Appalachian coal, the profitability of unregulated power plants burning Powder River Basin (PRB) coal is relatively robust. While the gross margins of unregulated PRB burning plants with heat rates in excess of 11 MMBtu/Mwh are less than \$10/Mwh we estimate the average gross margin of units with heat rates between 9.5 and 10 MMBtu/Mwh to be \$16/Mwh. Still far below the levels required to recover the costs of a new plant, these margins are not so low as to threaten the viability of existing units.<sup>33</sup>

These findings are consistent with the ERCOT study that demonstrates the inability of the plants to effectively finance debt. Of the three plants in this study only the units at Big Brown have heat rates substantially below 11 MM/Btu/Mwh. The six units at Martin Lake and Monticello have reported heat rates (at 85% capacity) in the range of 10,865 and 12,687 MM/Btu/Mwh.<sup>34</sup> In addition, EFH/Luminant reports that in 2011 it expects higher heat rates to be a negative driver to its adjusted EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization).<sup>35</sup> Despite the relative price advantage of the PRB/Lignite combination, it is likely these plants will continue to face day-to-day challenges achieving revenue gains given current growth projections.

An earlier EFH/Luminant presentation identifies the rising cost of PRB coal.<sup>36</sup> The presentation does not discuss the increase as a financial risk.<sup>37</sup> The investor presentation takes note that the company's average price of PRB coal was \$1.50 mm/btu from 2007-2009. It is expected to rise to \$2.79 mm/btu by 2013, an 86% increase over

---

<sup>32</sup> Energy Future Holdings, *2010 Form 10K*, February 18, 2011, p. 7.

<sup>33</sup> Bernstein Research, *No Light for Dark Spreads: How the Ruinous Economics of Coal-Fired Power Plants Affect the Markets for Coal and Gas*, February 18, 2011, p. 3.

<sup>34</sup> UBS, *Op Cit, Power Plant Spread Sheet*,

<sup>35</sup> Energy Future Holdings, *EFH Corp, Q4 2010, Investor Call*, February 18, 2011, p.25.

<sup>36</sup> Energy Future Holdings, *EFH Corp 2010 EEI Conference Discussion Deck*, October 31- November 3, (2010), p. 7.

<sup>37</sup> Energy Future Holdings, *EFH Corp, Q4 2010, Investor Call*, February 18, 2011, p. 8. This presentation identifies a \$4 per ton increase in the price of PRB coal as having a material impact on 2011 EBITDA.

approximately three years.<sup>38</sup> This sharp increase in the projected price of PRB coal is consistent with projections prepared by Peabody Energy, the largest producer of coal in the PRB.<sup>39</sup>

In addition, Natural gas prices drive power prices. They have dropped significantly. Most analysts and ERCOT planners assume low prices are not a temporary phenomenon but economic facts that now must be integrated into business models. EFH's private equity business plan requires high and robust increases in natural gas prices to succeed. At minimum it also needs low and stable coal prices. Moody's statement that it could see no near-term improvement must be broadened as low natural gas prices and an unsustainable debt structure become the entrenched reality of EFH finances for the foreseeable future.

## **VII. EFH/Luminant's Coal Assets Face Additional, Substantial Capital Outlays to Comply with Clean Air Act and Other Environmental Laws**

The financial crisis EFH now faces occurs at a time when Texas decision makers must chose the best options to reduce costly air emissions. The Dallas-Fort Worth area has some of the poorest air quality in the nation. Coal fired power plants are a major contributor to the problem.

A recent EFH/Luminant investor presentation provides an overview of the company's air pollution control compliance status and estimated need for new environmental control equipment. The presentation notes that all of Luminant's plants of concern in this paper (Big Brown, Martin Lake 1, 2, 3 and Monticello 1, 2, 3) have been the subject of some form of investment in pollution controls. All of them also face future decisions about additional investments in order to maintain compliance with pollution regulations.

The investor presentation carries the following caveat with regard to investments that have already been made:

There is no assurance that the currently installed control equipment will satisfy the requirements under any change to applicable law or any future Environmental Protection Agency or Texas Commission on Environmental Quality regulations.<sup>40</sup>

The investor presentation then identifies the following plants and the pollution control needs the company has identified:

---

<sup>38</sup> EFH, (EEI 2010), *Ibid*, p.7.

<sup>39</sup> Christina Morrow, Vice President, Investor Relations, *Jefferies: Sixth Annual Global Industrial and A&D Conference*, August 2010, p. 23.

<sup>40</sup> EFH, EEI Conference, October-November, 2010, p. 24.

**Table 2: Control Equipment Needed<sup>41</sup>**

Plant	FGD Scrubber SO2	Activated Carbon Injection Mercury	ESP Particulates Mercury	SNCR NOx	SCR NOx	Baghouse Mercury
Martin Lake 1	X	X	X			
Martin Lake 2	X	X	X			
Martin Lake 3	X	X	X			
Monticello 1		X	X	X		
Monticello 2		X	X	X		X
Monticello 3	X	X	X	X		X
Big Brown		X	X	X		X
Big Brown		X	X	X		X

The projected costs of compliance under the Clean Air Act according to UBS are \$3.6 billion.<sup>42</sup> This would bring the plants into compliance under existing rules, but as EFH/Luminant points out the risk remains that these investments will prove insufficient to solve the problem.

There are at least three other areas of environmental risk that pose regulatory challenges and ultimately may require additional capex outlays. The first relates to federal climate legislation. While Congress did not pass a climate bill that would put a price on carbon, it is likely such action will occur during the planned life of the plant. Second, EPA is promulgating new regulations on the handling and disposal of coal waste. The ultimate disposition of the regulations are uncertain at this point. Third, EPA is moving forward with regulations to more strictly enforce rules regarding water discharges from coal plants. This too is at an early regulatory stage.<sup>43</sup>

Consistent with the market and regulatory picture offered by the ERCOT study (and separate and apart from any credit problems stemming from the private equity over leverage), the Brattle Group recently released a study of coal plant retirements. The Brattle Group's analysis focuses on local regional economics and looks at younger, larger coal plants in this context. The study reviewed both regulated and merchant coal plants. *The Brattle Group's conclusion is all 13,000 MW of merchant coal generation in Texas fail to pass a basic profitability test. This makes them candidates for retirement or*

<sup>41</sup> Ibid.

<sup>42</sup> UBS Investment Research, *Clean Air Regulations: Impact of Proposed EPA Rules*, September 16, 2010. The \$3.6 billion estimate is derived from the spreadsheet accompanying the report and does not include the costs of CO2 cleanup for the three plants. If those estimates were included the total cost would be \$4.46 billion.

<sup>43</sup> While most of the studies related to coal plant retirement identified throughout this paper refer to coal ash and water discharge regulations, most do not try to assess any quantitative impacts. To understand an initial attempt to determine the impact on coal plant costs see: ICF International, *Clean Air Regulations: Impacts of EPA Proposed Rules*, September 16, 2010.

*repowering with natural gas. The conclusion provides an extraordinary example of the financial problems facing coal plants. For merchant plants, the Brattle report uses a financial standard, if power prices are insufficient to cover the cost of operation and debt, then the plant should be retired.*<sup>44</sup> The model captures the fundamental diseconomies of merchant generation in the current environment. That is, the plants are operating under market conditions where low natural gas prices are producing low power prices. Electricity sales, therefore, are not producing sufficient revenue to pay for the cost of plant operations, plus new capex expenditures. With future power prices appearing flat and more investment required in coal plants to achieve regulatory compliance in the future, the prospects for profitable merchant generation are not promising.

The Brattle study points to the potential difficulty of retiring 13,000 MW of merchant coal absent any plan for replacement capacity. The study's concern over low power prices, particularly as it relates to the production of new natural gas capacity requires that ERCOT and PUC use available tools to construct a plan to maintain reliability and affordability. The analysis in this paper provides the rationale from a financial perspective why the 5,280 MW of capacity held by EFH/Luminant should be the priority for retirement. This more limited target does not pose the same reliability issues and could move forward as other aspects of regulatory, financial and ERCOT coordination actions are put in place.<sup>45</sup>

The MJ Bradley study focuses directly on the issue of reliability. It provides the start of a plan to address new capacity needs. Bradley analysts point to widespread underutilization of the nation's natural gas capacity as a potential available resource. For example, using NERC data, the study states that the Texas Regional Entity (TRE) will have a 23% reserve margin by 2013, or a 7.8 GW cushion.<sup>46</sup> Furthermore, the study shows that the Region has 28,889 MW of combined cycle natural gas capacity with an overall utilization rate of 44%.

### **VIII. A Straightforward Assessment of EFH/Luminant's Coal Plant Valuation**

Another method to assess the value of EFH's coal plants is to take a step back from the distortions imposed by the 2007 leveraged buyout. This method establishes a common sense valuation. It starts with how much the plants cost to build originally. From there a reasonable depreciation formula is applied in a consistent manner.

Using the various data sources described in Appendix I, an original value for the total cost of construction can be estimated for the three plants under review in this paper. The valuation is then updated into current dollars so that both an estimate of the original dollars and current dollars can be presented. This study then applies a straight line

---

<sup>44</sup> Brattle, *Op Cit*, p. 27

<sup>45</sup> For a broad discussion of the tools available to energy planners who must manage the process of coal plant retirements and contend with local/regional dynamics of forecast demand, local transmission logistics, generation reduction and new capacity additions in today's environment see: MJ Bradley, *Op Cit*, pps. 18.

<sup>46</sup> Bradley (2010), p. 7.

depreciation formula consistent with the method of depreciation used by TXU Corporation prior to the Leveraged Buyout in 2007.<sup>47</sup>

This method yields a current valuation of between \$700 million and \$2.4 billion for the three plants presented in this study (See Table 7). The valuation starts with a reasonable estimate of actual cash outlays for plant construction and then is depreciated by a simple, direct calculation unencumbered by the distortions introduced by the demands of private equity management.

**Table 7: Estimated Remaining Value of Big Brown, Monticello, Martin Lake Plants<sup>48</sup>**

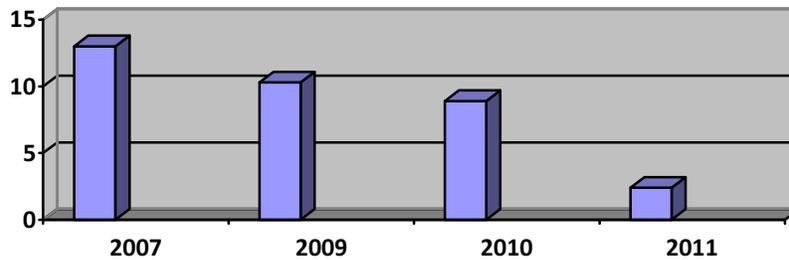
Plant	Estimated Original Costs (EOC)	CPI	EOC Dollars	Current	% <sup>49</sup>	Remaining Value	Remaining Value-Current Dollars
Big Brown	\$293,938,740.00	5.23	\$1,538,475,365.16		0.24	\$70,545,297.60	\$369,234,087.64
Monticello	\$738,859,536.00	3.35	\$2,478,873,743.28		0.36	\$265,989,432.96	\$892,394,547.58
Martin Lake	\$995,946,000.00	3.01	\$3,000,785,298.00		0.38	\$378,459,480.00	\$1,140,298,413.24
	\$2,028,744,276.0		\$7,018,134,406.44			\$714,994,210.56	\$2,401,927,048.46

<sup>47</sup> TXU Corp, 2006 Form 10K p. A-82 presents the company’s depreciation formula as a 2.0% straight line formula. This depreciation formula or a close approximation was used by TXU prior to the leveraged buyout. The EFH 2007 Form 10K contains a less transparent description of its new, post buyout depreciation formula: “Depreciation of EFC Holdings’ property, plant and equipment is calculated on a straight-line basis over the estimated service lives of the properties. As is common in the industry, the Predecessor historically recorded depreciation expense using composite depreciation rates that reflected blended estimates of the lives of major asset groups as compared to depreciation expense calculated on a component by asset-by-asset basis. Effective with the Merger, depreciation expense is calculated on a component asset-by-asset basis. Estimated depreciable lives are based on management’s estimates of the assets economic useful lives.” The Form 10K presentation does not offer those depreciation formulas or any adjustments to coal plant or any other assets with any degree of specificity. Coal plant ‘useful life’ assumptions can vary from 30-60 years. Recent studies of coal plant retirement have tended to use 40 years as a cutoff between older and newer plants when discussing useful life. The use of 40 year straight line depreciation would place the total value of these plants below \$1 billion. (See: MJ Bradley and Brattle Group). This paper uses the 50 year straight line assumptions originally adopted by TXU Corp. EFH, 2007 Form 10K, A-82

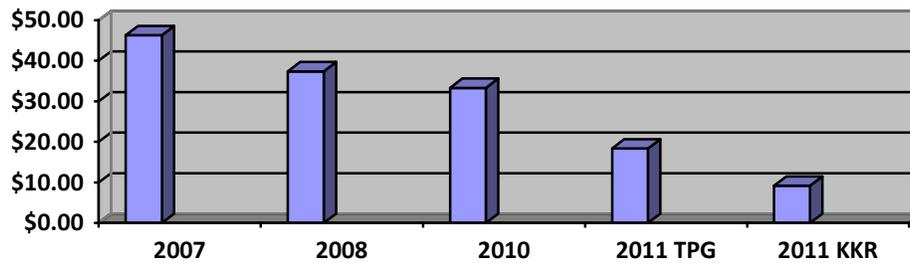
<sup>48</sup> Estimated Original Costs of Big Brown and Monticello are derived from FERC Form One (self-reported TXU data). Martin Lake valuation is taken from Komanoff (1981). Depreciation dates start on the last plant date from FERC Form One for Big Brown and Martin Lake and 1979 for Martin Lake. Regarding depreciation: TXU’s 2006 Form 10K Filing states that the company uses a 2.0% straight line formula.(TXU, 2006 Form 10k, p. A-82). Subsequent to the leveraged buyout the EFH Form 10K uses a less transparent depreciation formula. For the purposes of this report the 2006 2.0% straight line formula is applied.

<sup>49</sup> Column represents the percentage of value remain.

**Chart 2: Big Brown, Martin Lake and Monticello Coal Plant Values (\$ billions)**



**Chart 3: EFH Enterprise Valuation, 2007 to Present**



A recent article in the New York Times captures the problem of private equity valuations during volatile economic times.<sup>50</sup> The article quotes both KKR and TPG’s valuation of its holdings in EFH. KKR assesses the investment at 20% of its original value, while TPG believes it retains 40% of its original value. Taken across the enterprise as a whole this would leave EFH valued somewhere between \$9.2 billion and \$18.4 billion (of the original \$46.3 billion).<sup>51</sup> The discussion in the Times leaves the issue at the level of the enterprise value. But these contemporary approximations of value are consistent with the calculations made in this report.

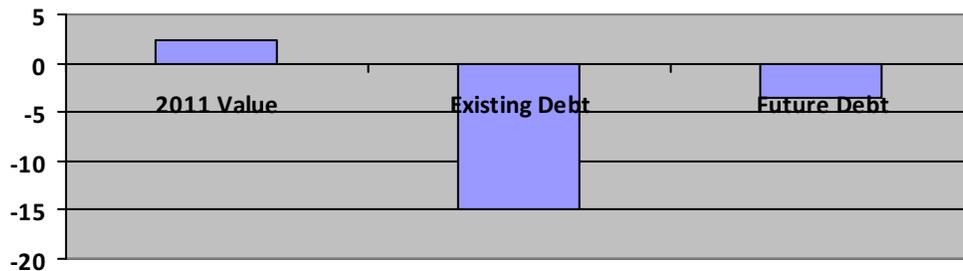
<sup>50</sup> See: Julia Creswell, *A Portfolio’s Price*, New York Times, January 4, 2011.

<sup>51</sup> Moody’s original valuation of the coal plants ranged between \$11.7 and \$14.3 billion as part of the \$46.3 billion package. Using the KKR figure of 20% (and recognizing that its valuation could be internally weighted plus or minus with regard to the coal plants), the coal plant valuations would be between \$2.3 billion and \$2.8 billion. As for TPG, the valuations would be in the range of \$4.6 billion to \$5.6 billion.

## IX. Plant Valuations In Context of Environmental Liabilities and Existing Debt Levels

There are several key variables to keep in view when attempting to assess the overall value and future investment viability of these plants.

**Chart 4: Value of Plant Versus Existing Debt and Future Liabilities**



Existing debt and future additional liabilities far exceed the value of these plants. In order for these plants to succeed and cover their operation costs and carry the associated capital costs, power prices in the ERCOT region would need to rise significantly. As demonstrated above, this is not the case (and unlikely to be the case). Depending on how one views the useful life of these plants it is more or less difficult under current market conditions to construct viable scenarios whereby the plants could pay the outstanding debt and operating costs.<sup>52</sup> The ERCOT analysis that shows insufficient net revenues to generate reinvestment suggests the normal cash flow analysis yields an equally dismal picture.

The Brattle Group's general conclusion that merchant coal power in Texas is diseconomic is derived from an analysis of only the operation expenses/revenues<sup>53</sup> and the estimated outstanding liabilities related to environmental compliance. What heightens the concern for the three plants is their contribution to a major national air pollution hot spot. The burdens and economic distortions created by the leveraged buyout, add a third obstacle that places economic solvency even further out of reach.

<sup>52</sup> The MJ Bradley paper offers a highly relevant point. Many plants, including the ones in this study, are approaching the end of their useful life. Investment decisions about their future would need to be made whether or not the EPA was moving toward compliance; whether or not Congress passed a carbon price; whether or not new ash or water discharge rules were implemented and whether or not plants were saddled with an unsustainable credit structure. The opportunity for the capital planning process in the energy field is whether or not investment can also introduce improvements and efficiencies into the electricity system. See p. 17.

<sup>53</sup> The squeeze on net revenues for coal plants is amply demonstrated by the Luminant presentation, ERCOT study and ratings downgrade discussed above.

## **X. Conclusion**

A national discussion is currently underway concerning how best to invest to improve our system of electricity for the next generation. The recent study by MJ Bradley Associates makes the point that most of the nation's energy grid needs new investment whether or not new pollution rules are in the equation. The age of the nation's electrical fleet and the technology that serves it requires that new investment take place. The question is what type of power system best serves the nation's communities looking forward from 2011.

The three power plants sold to EFH (Big Brown, Monticello and Martin Lake) were placed in service during the 1970's as part of a large national build out of nuclear and coal plants. They are relatively large units ranging in size from 565 MW to 750 MW, representing cumulatively 5,280 MW's. Like all existing coal plants in the United States' they must comply with new pollution regulations that address public health and safety and environmental costs related to emissions discharges. The particular region the plants serve, Dallas/Forth Worth, is a national hot spot – an area out of compliance with federal air pollution laws.

The bottom line investment decision is whether \$3.6 billion—and possibly more—should be invested into plants that are nearing the end of their useful life (usually fifty to sixty years) in a regional economy that is losing its attractiveness to coal plants. Throughout the United States coal plants are being retired because they are no longer profitable. In recent years, power prices in North Texas have dropped due to low natural gas prices. When power prices are lowered, power plants receive less revenue and are less capable of supporting large new investments. This is a particularly significant problem for EFH's coal plants that have high fixed costs and high revenue needs. Natural gas and, consequently, regional power prices, are projected to remain low at least for several years, if not longer.

These basic economic facts (that is high fixed costs, low natural gas and power prices, and the need for large new investments to meet environmental requirements) provide a strong rationale to make these plants candidates for retirement. A recent report by the Brattle Group, a utility industry consulting firm, reaches this conclusion as well.

The facts and findings of this study fill out the picture created by the Brattle Group's Texas observations. This study documents how, as a financial proposition, the economic burdens and distortions created by the leveraged purchase of TXU in 2007 have undermined the economic solvency of the three coal plants (if not EFH itself). The purchase by KKR and others had the net effect of placing the company and its assets deeply in debt and forced to rely on speculative assumptions to rescue it. The assumptions that supported the purchase – that natural gas prices would rise significantly which would lead to highly valued power plants – never materialized, but the debt that paid for the purchase remains owed to a consortium of private equity funds and investment banks. Under the current arrangement only very high power prices would bail out this largely speculative investment in the Texas electrical system. But those very high

power prices are unlikely to materialize and Texas businesses and residents likely to be very unwilling to pay for EFH's mistakes for the next twenty or so years.

The MJ Bradley study referred to above sets out a series of tools available to energy planners and decision makers who must monitor and develop strategic alternatives to maintain a reliable, efficient and affordable supply of electricity. The report cites specific areas of underutilized gas capacity in the country, as well as new efficiency mechanisms and other energy resources to address coal plant retirement reliability issues. After focusing on a large swath of coal plants that need to be retired and identifying over 40 plants already announced across the nation, the study concludes:

Current industry practice and a review of applicable system data indicate the industry is well positioned to respond to EPA's mission to "help millions of Americans breathe easier and live healthier" without threatening electric reliability. Generation plant capacity and availability, consumption levels and patterns, and transmission capacity and use must all be considered when judging the reliability impacts of environmental regulatory action.

The existing substantial excess capacity, the industry's proven track record to timely construct new generation and to efficiently coordinate the scheduling of planned outages, together with capacity upgrades, transmission enhancements, "smart grid" investments, fuel conversions, DR [demand response], and EE [energy efficiency], should mitigate reliability concerns.

The industry has already successfully employed these various strategies to reliably meet customers' energy needs while reducing environmental impacts, and it will continue to do so in response to EPA's new regulations. As a final backstop, existing statutory, market and regulatory safeguards will facilitate the retirement of inefficient units, and an orderly transition to cleaner, more efficient generation.<sup>54</sup>

---

<sup>54</sup> MJ Bradley Associates and Analysis Group, *Ensuring Clean, Modern Electric Generating Fleet While Maintaining Electricity System Reliability*, August 2010, p. 20.

## Appendix I:

### A. Straightforward Assessment of EFH's Luminant Coal Plant Valuation

The 2007 transaction introduced a major set of valuation distortions concerning the asset value of EFH and its subsidiaries. To assess the value of the coal plants without full access to corporate records is a difficult undertaking. The passage of time from 2007 and the new accounting treatments employed by EFH would make the task difficult. This exercise is designed to offer one treatment of the valuation question based on some measure of independent sources.

EFH's corporate predecessor, TXU, filed annual financial reports with the Federal Energy Regulatory Commission (FERC). These reports, referred to as FERC Form One, report certain selected financial data pertaining to the company's financial performance and contribution to the nation's energy needs.

One section of the annual filing requires a company to report selected performance indicators of individual power plants owned by the company. FERC maintains a website and keeps the filings available to the public, though the available postings are somewhat dated.<sup>55</sup> For the purposes of this analysis the historic record for the Big Brown and Monticello plants are useful. There are no filings for Martin Lake within the TXU filings that were reviewed.

In order to independently test these self-reported TXU filings, this paper relied on two independent, contemporaneous, technical accounts of coal plant construction in the nation covering the 1970's (the period when all three of the plants were constructed). One study by Massachusetts Institute of Technology researchers Paul Jenkins and George Rosanski, *Fuel Utilization By the Electric Industry in the United States 1975-1995* is primarily focused on fuel prices for the electric industry.<sup>56</sup> It does however offer contemporary construction plant data and regional information that is relevant and useful.

The second study, Charles Komanoff, *Power Plant Cost Escalation: Nuclear Capital Costs, Regulation, Economics* offers a more detailed and nuanced presentation of the state of the construction, capital and related markets having an impact on both nuclear and coal plant construction during the 1970's.<sup>57</sup> The study contains a data base with over 60 coal plants constructed during the period including specific, but partial cost of construction data for several of the plants of importance to this study.

---

<sup>55</sup> A check of FERC's website did not uncover any FERC Form One form filings for Energy Futures Holding, Energy Futures Intermediate Holdings, Texas Competitive Electric Holdings, Oncor, Luminant or Texas Energy. The only available filings are for TXU during the period 1994-2001.

<sup>56</sup> Jenkins, Paul and Rosanski, *Fuel Utilization By The Electric Industry in The United States 1975-1995*, Energy Laboratory Working Paper No. MIT-WL 76-0006WP, May 1976.

<sup>57</sup> Komanoff, Charles, *Power Plant Cost Escalation: Nuclear and Coal Capital Costs, Regulation, Economics*, New York: Van Nostrand Reinhold Company, 1981.

## B. FERC Form One

The 2001 FERC Form One filing from TXU contains the following information regarding the Big Brown and Monticello Plants.

**Table 3**  
**Big Brown Plant**  
**Selected Data - FERC Form One**  
**TXU Generating Plant Statistics (Large Plant)<sup>58</sup>**

<b>Line Item</b>	<b>Line Item Subject Matter</b>	<b>TXU Disclosure</b>
<b>Line # 3</b>	Date of Original Plant	<b>1971</b>
<b>Line # 4</b>	Date of Last Plant	<b>1972</b>
<b>Line # 5</b>	Total Installed Capacity	<b>1186.8 MW</b>
<b>Line # 16</b>	Total Cost	<b>\$293,938,740</b>
<b>Line #17</b>	<b>Cost/ KW of Installed Capacity</b>	<b>\$247.6734</b>

**Table 4**  
**Monticello Plant**  
**Selected Data - FERC Form One**  
**TXU Generating Plant Statistics (Large Plant)<sup>59</sup>**

<b>Line Item</b>	<b>Line Item Subject Matter</b>	<b>TXU Disclosure</b>
<b>Line # 3</b>	Date of Original Plant	<b>1974</b>
<b>Line # 4</b>	Date of Last Plant	<b>1978</b>
<b>Line # 5</b>	Total Installed Capacity	<b>1980.5 MW</b>
<b>Line # 16</b>	Total Cost	<b>\$738,859,536</b>
<b>Line #17</b>	<b>Cost/ KW of Installed Capacity</b>	<b>\$373.1520</b>

There are a number of observations to be made from this limited information.

- The data offers capacity, construction and cost per kw that combine the units within the plant. The units, however came on line at different times (Big Brown has two units and Monticello has three units). The figures presented are therefore “mixed” or “blended” values for one or more plants reflecting corporate outlays over several years.

<sup>58</sup> TXU, *FERC Form One, Generating Plant Statistics (Large)*, Steam Electric: Big Brown, 2001/Q4, April 30, 2002, pg. 402.

<sup>59</sup> TXU, *FERC Form One, Generating Plant Statistics (Large)*, Steam Electric: Monticello, 2001/Q4, April 30, 2002, pg. 402.

### C. Contemporaneous Studies of Construction Costs

The Jenkins and Rosanski study in 1976 present a survey of coal plant costs at the time – construction, coal prices and operating expenses and a forward looking estimate. Table 5 offers the following snapshot of the then current construction costs and a forward looking estimate.

**Table 5**  
**Unit Capital Costs (Coal)**  
**(\$/Kilowatt for New England in current dollars)**

<b>1975</b>	338
<b>1980</b>	472
<b>1985</b>	643
<b>1990</b>	881
<b>1995</b>	1144

The study uses New England for its regional base. It then offers a capital multiplier for fossil capital costs to capture variations in regional construction market dynamics. The Texas area, West South Central multiplier is .8718. For 1975 the Jenkins and Rosanski analysis estimated a capital cost for a West South Central coal plant at \$295 Kw for 1975 and \$411 Kw for 1980.

The Komanoff study on nuclear and coal plant costs was published in 1981. The study included a database of coal plants constructed between 1971 and 1978 (including Big Brown 1; Monticello 1 and 2 and Martin Lake 1).<sup>60</sup> Regional data on construction cost variations in the South Central area which includes Texas show construction costs typically 24% below the base case Midwest plant cost.<sup>61</sup>

---

<sup>60</sup> Komanoff, p. 230.

<sup>61</sup> Komanoff's detailed treatment of construction costs and the data that reports on it addresses a methodological issue for this paper. Komanoff notes that it is typical when reporting construction cost data for utilities to report cash outlays for plants. The outlays occur over years so that the actual value of the dollars invoked are never accurately represented but are in fact "mixed". Komanoff's use of 1979 as a base year assists with the process of setting a "stabilized" price. For a complete discussion of the factors involved with establishing an actual base value for a coal plant and then making extrapolations: see Komanoff: *Conversion of Capital Costs into Constant Dollars*, Appendix 3, p. 312.

**Table 6**  
**Coal Plant Costs from Komanoff Database**

Plant/Dates	Size of Unit	Plant Costs-Mixed Dollars (millions)	Plant Costs - 1979 Dollars (millions)	Costs \$/kw Mixed	Costs \$/kw 1979
<b>Big Brown</b>					
- 1971	593 MW	N/A	N/A	N/A	N/A
-1972	593 MW	\$57.8	\$116.9	\$98.0	<b>\$197</b>
<b>Monticello</b>					
-1974	660 MW	\$128.7	\$220.6	\$217	<b>\$372</b>
-1978	660 MW	\$75.1	\$118.9	\$127	<b>\$201</b>
- XXX	660 MW	N/A	N/A	N/A	N/A
<b>Martin Lake</b>					
-1977	793 MW	\$254.6	\$331.9	\$321	<b>\$419</b>
-1978	793 MW	N/A	N/A	N/A	N/A
-1979	<b>793 MW</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

- The Komanoff and Jenkins/Rosanski studies place the FERC Form One accounting presentation within a reasonable range of construction costs for the period of the 1970's for Monticello and Big Brown. The FERC Form One costs are more in line with Komanoff's 1979 dollar amount.
- Martin Lake Unit #1, while not disclosed on the available FERC Form One, is part of the Komanoff database. The Martin Lake costs are on the high end of the cost scale and reflect the fact the units were constructed later in a decade during a period of significant price escalation. Komanoff's \$419/kw is also well within the Jenkins/Rosanski range for the period (\$411/kw).

## **Appendix II: Tom Sanzillo Biography**

Tom joined TR Rose Associates, a public policy and financial consulting firm in New York City in 2007.

From 1990 to 2007, Tom served in senior management positions to the publicly elected Chief Financial Officers of New York City and New York State. The period 2003 to 2007, he served as the First Deputy Comptroller for the State of New York. Tom was responsible for a \$150 billion globally invested public pension fund (including a significant public equity portfolio); oversight of state and 1600 units of local government budgets and public debt offerings; audit programs for all state agencies, public authorities and local governments, and review and approval of state contracts. One estimate places the level of public assets under the State Comptroller's watch at over \$700 billion. Due to an early resignation, Tom served for a short period as the New York State Comptroller from 2006-07.

For the past three years TR Rose, under Tom's leadership has served several clients working to create alternatives to fossil fuel use in the United States. Tom has:

- served as an expert witness in a case brought by a coalition opposed to a coal fired power plant in Marshalltown, Iowa. The sponsor withdrew the plant.
- prepared a review of a bond prospectus by a power authority in South Carolina for a coalition opposing plans for the Pee Dee coal plant. The power authority has recently canceled the plant.
- prepared a critical review of the proposed contract between municipal electric systems and the public power systems in Ohio for the Meigs County coal plant. The plant has since been canceled.
- wrote one credit and financial analysis and two short follow-up papers on Smith coal plant and East Kentucky Power Cooperatives (EKPC) financial strategy. EKPC recently withdrew its application for the plant.

Tom is involved with several other coalition efforts in different states and provides policy advice to national organizers seeking to change private sector and federal financing policy for coal plants. This work has entailed providing research and analysis on coal production, price and industry trends, energy and coal industry public and private financing. He has published several studies alone and jointly on individual plants, federal subsidies and coal-to liquids. He has served as a financial advisor to the innovative Green Jobs/Green New York large scale residential retrofit program in New York State. Tom has served on the Advisory Board on the future management of the Long Island Power Authority in New York State. His clients also include business, labor and community organizations covering a host of public and private finance and policy issues.

Tom's work in the public policy arena covers over thirty years. As a government official, not for profit director and housing organizer Tom has published on a vast array of topics: housing, environment, energy, transportation, public health, health financing, poverty,

race relations, public assistance, economic development, job training, public debt, pension fund financing, education, public sector management, public budgets, government contracting, public debt, local government finances and the electoral process.

